

## DERMOID CYST OF THE HEAD.

EXCISION, USING CRILE'S TEMPORARY CLAMP ON THE COMMON CAROTID.

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THE situation of dermoid tumors usually follows certain definite lines, as Mr. Bland-Sutton has pointed out. The vast majority of these growths are found either in the abdomen, especially in connection with the ovary, or else about the embryonic fissures. Those fissures which, when closing, separate a mucous from a cutaneous surface, are especially prone to be the seat of dermoids. Thus, it is not uncommon to find them about the coccyx, where the posterior fissure closes, and about the eyes, springing from the orbito-nasal fissure. The lower part of the nose, the middle of the upper lip, and the outer angles of the mouth are regions where dermoids of the face arise because of the previous existence of fissures at these points. The floor of the mouth, resulting from the closure of the intermaxillary fissure, is not an infrequent region for these cysts, and here they are often confused with retention cysts. The resemblance of these two classes of cysts is all the more confusing when the dermoid is derived from the implantation of an early matrix before the more complex epithelial elements have formed. In such instances, the contents may be of a mucous character, resulting from the degeneration of the lining epithelium of the dermoid, and consequently be almost identical with the contents of retention cysts found in this neighborhood. If, however, the matrix from which the dermoid arises is of a later stage of development when such structures as hair or teeth may arise from it, the differential diagnosis is clear. Dermoids in the neck are usually derived from inclusion of a matrix from the branchial clefts.

It has been generally believed that the ovary is the most

Fig. 1



Dermoid cyst of head. Photograph taken a few days before operation.

frequent site of dermoid cysts. This is due to the fact that such tumors of the ovary often attain large size and, consequently, are reported more frequently than the smaller and more insignificant dermoids in other regions of the body. Then, too, the dermoid of the ovary often contains other elements than those of epithelial origin, which makes the tumor of a more sensational character and, therefore, more likely to be reported. For instance, cartilage and bone showing a mixed matrix are often found, whereas dermoids of the subcutaneous areas are almost always of a pure epithelial origin.

The following case is reported because the dermoid was in an unusual location, apparently springing from the temporal fossa, and because it is an exceptionally large one for this region. Semm says that with the exception of the ovary, "dermoid tumors larger than a hen's egg are rare." From an operative standpoint some interest may attach to the effect of temporarily clamping the common carotid—a method recommended by Crile. The absence of injury to the artery is shown quite clearly in the specimen which consists of the common carotid and the first portions of the internal and external carotids.

The patient was a negro man, forty years of age, of a rather low degree of intelligence. His previous history was vague, but from what could be gathered he seemed to be in good health until two years before admission to the hospital, though he had never been very robust. About two years before the present operation the left side of his lower jaw was fractured as the result of an accident. This was followed by some tumor formation, as well as I can gather from his history, and as a result the left portion of his lower jaw was excised by another surgeon. Soon after this operation he noticed a growth beginning on the left side of his face, apparently involving the upper jaw. Later the tumor grew more rapidly, and became quite painful, the pain being due, apparently, to pressure upon branches of the fifth nerve. His appearance on admission to the hospital, January 2, 1907, is well represented by the accompanying photograph (Fig. 1). There was no paralysis of the seventh nerve, and no paralysis of sensation. Certain portions of the tumor presented a bony consistency

and over other portions distinct fluctuation could be obtained. The hard area of the tumor corresponded to about the region of the malar bone, and was later shown to be due to the fact that this bone and the adjacent portions of other bones were attached to the wall of the cyst and had been pushed forward and outward by the growth of the tumor. The part that showed fluctuation was where the cyst wall was covered merely by skin and subcutaneous soft tissue. The patient was considerably reduced in strength and weight, and suffered neuralgic pains from pressure almost constantly. On admission his pulse was 80, temperature 98.4, respirations 18, urine normal. He had considerable difficulty in chewing owing to the previous removal of part of his lower jaw, and also because of the tumor. He was given tonics and soft diet and every effort was made to build him up. The nose and throat were sprayed with an antiseptic solution several times a day and the mouth cleaned after feedings.

On January 8, 1907, I operated upon him at the clinic under ether narcosis. A hypodermic of morphine and atropine was given before the anesthetic was started. An incision over the anterior lower portion of the sternomastoid muscle exposed the common carotid, which was clamped with Crile's clamp, both blades of which had been covered with rubber tubing. The skin over the most prominent area of the growth appeared moderately adherent, so the incisions were fashioned in such a manner as to leave this part of the skin attached to the tumor, as it was thought at the time that the tumor was a sarcoma. A long incision, starting behind and above the outer angle of the orbit, swept down somewhat posterior to the most prominent portion of the tumor, and curved forward underneath the jaw. Another incision, connecting the horizontal and vertical portions of the first cut, left an island of skin over the most prominent part. The upper part of the tumor was then exposed, and the outer wall of the orbit cut through with bone forceps. The lower wall of the orbit, the superior maxilla near the alveolar process, and the zygoma near the temporal bone were similarly cut and the lower and outer portion of the wall of the orbit, including all of the malar and part of the superior maxilla, was removed with the growth. By dissecting from above downward and keeping as far from the capsule of the tumor as possible it was excised intact. Particular care was taken to avoid rupturing the cyst. As the

FIG. 2.



The interior of the common and internal carotid arteries. The Cottle clamp had been applied about point "A." Note entire absence of injury to the intima. The few strands of fibrin, found in all large arteries after death, have not been removed.

FIG. 3.



Sateral view, showing the external carotid, which has been split to the ligature, still containing part of a clot.

patient had been placed with his body and head in a semi-sitting position but little blood was lost from oozing, and the temporary clamp on the common carotid controlled arterial bleeding perfectly. Not more than an ounce and a half of blood was lost at the operation. When the growth was removed the external carotid was ligated near its origin, as on account of the bony surfaces left it would not have been practicable to control the terminal vessels from this artery by ligatures. The clamp was removed from the common carotid and the wound sutured. The patient suffered somewhat from shock, but an hour after returning from the operating room his temperature was 98.3, pulse 100. His condition the following day was satisfactory, except that deglutition was rendered painful and more difficult by reason of the extensive operation. Anticipating the possibility of pneumonia, a pneumonia jacket was applied and the nose and mouth frequently sprayed with antiseptic solutions. During the first forty-eight hours after operation he vomited a few times. On January 10th, his temperature reached 101, the highest point up to that time since the operation. His pulse was 120 and respirations 32. Examination showed beginning pneumonia, and the patient was referred to Dr. M. Call, Professor of Medicine in the Medical College of Virginia. The respirations and pulse increased in rapidity until a few hours before his death, when the pulse was 162 and respirations 52, with a temperature of 102. He died about nine p.m. on January 14th.

The post-mortem held by Dr. Call a few hours after death showed consolidation of practically all of the lower lobe of his right lung and portions of the upper and middle lobes. There were old pleuritic adhesions on the right side. Death was due to pneumonia. The wound was in excellent condition, and had healed by first intention throughout most of its extent. There was no suppuration at any point. Most of the trunk of the common carotid with portions of the internal and external carotid arteries was removed in one specimen. The common carotid showed no injury at the point where the clamp had been applied (Fig. 2). The lumen of the internal carotid was free, as was also that of the external carotid up to the ligature. On the distal side of the ligature a clot filled the lumen of the external carotid for about half an inch. The condition of the arteries is shown in the accompanying photographs (Figs. 3 and 4).

I am greatly indebted to Dr. Joseph Bloodgood, of Baltimore, for the following report:

"March 10, 1907.

"*Pathology*: P. No. 8007, *Crass*.—The specimen consists of a cystic tumor of the peculiar shape shown in the photographs (Figs. 5 and 6). It measures about 6 inches in length by 3 inches by 4 inches. Over one side there is an elliptical piece of skin 4 inches by  $1\frac{3}{4}$  inches. On another side is a flat piece of bone  $2\frac{1}{2}$  inches by  $2\frac{1}{2}$  inches in surface diameters. The bone, however, is exposed in only one area, which suggests the inferior orbital ridge of the superior maxillary bone. The remainder of the bone is covered with muscle, subcutaneous tissue and fat, as it is represented the anterior wall of the antrum. Attached to the cyst wall are pieces of fat, muscle and connective tissue. The cyst wall can be stripped from the piece of bone and leaves it denuded of its periosteum. On opening the cyst, it contained a thick, brown fluid, quite granular and of the appearance of contents of a dermoid into which there has been some hemorrhage. When this contents is washed out, in one or two places the granular masses of the contents stick to the smooth cyst wall within. The wall in some places is gray in color, in others stained brown with blood. It looks like epithelium-lined tissue. On section it is composed of a dense membrane not more than 1 mm. in thickness. Beyond this membrane in some places there is no other tissue, it is adherent to the bone over the piece described, while in the remainder there is muscle beyond.

"*Tath*, No. 8007. Microscopic study:

"Section 2. Thin cyst wall. Section shows fibrous connective tissue in lamellæ. On the cyst side the connective tissue is much more compact and on the surface in the first layer of connective tissue there are numerous spindle nuclei suggesting the basement membrane beneath an epithelial lined surface but no epithelium is to be seen. Beneath this there is some pigment. In the wall further from the surface there are numerous round and spindle nuclei in the fibrous connective tissue and here and there small areas of lymphoid cells. Deeper there is the remains of a striated muscle undergoing pressure atrophy. There are very few blood vessels and no giant cells. We have the usual picture of connective tissue wall of the cyst, but the epithelial lining quite often found in the dermoid is not present. Here and there are large vessels filled with blood cut both longitudinally and across. As the reticular areas are most marked where we find remains of muscle they suggest the indication of an interstitial myositis from pressure. The round, spindle and lymphoid cells are found also in the region of vessels.

"Section 1. The thicker portion of the wall including muscle. We have the same picture seen in section 2, but no epithelial lining. Beyond this muscle it is almost completely replaced by fibrous tissue, with here and there a blood vessel surrounded by lymphoid cells."

FIG. 4.



Lateral view, showing ligature on the external catagil.

FIG. 5.



Anterior surface of the tumor. Note near the bony end a portion of the island of skin left attached in the tumor; near the upper end part of the bony wall of the orbit.



Fig. 6.



Internal surface of the tibia.